

PMB 2022: GENERAL BOTANY

3 credits, Spring 2021

Course Objectives:

- To learn basic plant biology: anatomy, development, reproduction, ecology, and evolution.
- To understand the relation between plant structure and function, and the interactions between plants and their microbial partners.
- To understand the roles of plants in the ecosystem and human uses of plants.

Prerequisite: one semester of college-level biology.

Required Texts & Materials:

- Required textbook: Botany: an Introduction to Plant Biology by James Mauseth, 6th (2016) or 7th (2020) edition. Physical books or E-books are both OK. We do not use the softwares that come with the E-book. Older editions are not recommended.
- Lab manual: your TA will provide the lab manual each week (physical copies of the manual will be provided for in-person lab). No need to purchase a lab manual.
- Please use a laptop or desktop computer with a camera instead of phone for the exams, quizzes, and for Zoom meetings. Contact the instructor if you have difficulty and we may get you a loaner laptop.

Schedule	Section	Time	Location	Instructor
Lecture	001	Asynchronous	Canvas	Yang
Labs	002	T 12:50–3:50 pm	174 Plant Growth Facility	Toro
	003	T 5:10–8:10 pm	174 Plant Growth Facility	Toro
	004	Th 12:50–3:50 pm	Online. Zoom link	Mondragon
	005	Th 5:10–8:10 pm	Online. Zoom link	Mondragon

Contact information	Email	Office Hours
Prof. Ya Yang	yangya@umn.edu	4:05–4:55 pm Tuesdays on Zoom link or by appointment
Ariadna Mondragon	mondr042@umn.edu	By appointment. Zoom link
Laura Toro	torox008@umn.edu	By appointment. Zoom link

Grading:

Lecture modules (24 lecture modules)

Exam 1 (2/18)	100	Covers lectures 1–8.
Exam 2 (3/25)	100	Covers lectures 9–16
Final exam (5/6)	125	Covers lectures 17–24 (100 pts) + questions from Exams 1&2 (25 pts)
Lecture quizzes	60	3 pts per module, open-book on Canvas, 4 drops You have a week to complete each module and take the quizzes You can attempt as many times as you want before the deadline
Discussion	15	1 pt per module by either asking or answering a question, 9 drops You have a week to participate in the discussion for each module

Lecture total 400

Labs (13 labs)

Lab quizzes	150	5 online quizzes on lab materials, 30 pts each, no drops
Lab notebook	26	2 pts for each lab, no drops
Lab participation	24	2 pts for each lab, 1 drop
Lab total	200	
COURSE TOTAL:	600	

Letter Grades Based on Total Course Points

Cut-offs of point totals for letter grades may be lower, but not higher than those shown here.

≥ 540 (90%)	A	402 (67%) – 419	C-
522 (87%) – 539	A-	360 (60%) – 401	D+
498 (83%) – 521	B+	300 (50%) – 359	D
480 (80%) – 497	B	<300	F
462 (77%) – 479	B-		
438 (73%) – 461	C+	402 – 600	S
420 (70%) – 437	C	<402	N

Our approach in the time of COVID-19

- The lecture is arranged in 24 modules that each cover specific topics. Learning materials will be released on Canvas Tuesday and Thursday mornings, and you have a week to complete each module.
- All three lecture exams and five lab quizzes are online on Thursdays via [Proctorio](#). You can take the test any time during the 24-hour period on that day (central time).
- Both Tuesday lab sessions will be offered in-person, and both Thursday lab sessions will be offered online-only.
- For the in person labs - If a situation arises where a student is affected by SARS-CoV-2, and must be in quarantine, we will make individual adjustments following university-wide policies.
- Note that the last in-person lab will be on March 30. After that, we will continue to meet over Zoom. This will occur for you on the same day that you would have been on campus in-person for lab.

COURSE POLICY

Absences and Makeup Work: There is a detailed description of the University policy:

<https://policy.umn.edu/education/makeupwork>. In brief, the following types of events may prevent your attendance at lab sessions miss a deadline:

- Health issues: following the UMN policy, students need not provide a doctor's note for a single absence or a single missed deadline. Please inform Prof. Yang or your TA as soon as possible, **especially if you need to miss an exam or a lab quiz.**
- Religious observances, University sponsored events, military service, or family emergencies.
- We cannot excuse absences and provide make-up materials for absences due to employment-related activities due to the large class enrollment
- We will provide make-up materials for excused absences.

Academic Integrity: Scholastic dishonesty is broadly defined as “any act by a student that misrepresents the student’s own academic work or that compromises the academic work of another.” Scholastic dishonesty means plagiarizing; cheating on assignments or examinations; acquiring or using test materials without faculty permission; or sabotaging another’s work. In this course, scholastic dishonesty will not be tolerated. Scholastic dishonesty will not be tolerated. Disciplinary actions for academic dishonesty include assignment of a grade of 0 for the work in the first instance. A failing grade for the course will result from a 2nd infraction. All cases will be reported to the UMN Office For Community Standards.

Concerns regarding exam, quiz, and participation scores: Questions regarding any course scores should be brought to the instructor's attention no later than one week after scores are posted. Final grades will be available on Canvas, and via official University grade notification. Concerns regarding your final letter grade in the course should be addressed with Dr. Yang before May 20, 2021.

Extra Credit: We do not provide extra credit opportunities because of concerns for fairness. Students will be allowed make-up work for excused absences from graded activities.

Mental Health and Stress Management: You may experience a range of issues that can cause barriers to learning, such as health and financial issues due to COVID-19, strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance and may reduce your ability to participate in daily activities. University of Minnesota services are available to assist you. You can learn more about the broad range of *confidential* mental health services available on campus via the Student Mental Health Website: <http://www.mentalhealth.umn.edu>. Many students find these services helpful and the professional health care providers may be able to help you identify issues requiring special accommodations.

Accommodations: Dr. Yang and the TAs are fully committed to accommodating differing abilities. If you feel you have a disability that requires special accommodation for participation in any aspect of the course, please contact UMN's excellent Disability Services (<https://diversity.umn.edu/disability/home>) or the Boynton Health Services (<http://www.bhs.umn.edu/index.htm>). We do require an accommodation letter from the Disability Services to make changes in testing expectations (e.g. allowing more time). Please notify Prof. Yang at the beginning of the semester, or as soon as you are able, so that we can make appropriate arrangements. All information will be held strictly confidential and arrangements for individual accommodations are made privately.

Diversity and Inclusivity: We are committed to create a learning environment that supports students with a diversity of backgrounds and experiences. If something is said or done in the classroom that is troubling to you, we would like to hear about it, please contact us personally or anonymously so that we can address any issues and grow as educators to better serve our students. We know that some of the course material discussed in this class may be biased. We would like to either eliminate biased material from our course or discuss it in a way that will help us learn. Additionally, we would like to enrich the course with more diverse perspectives and inclusive practices and materials. Please contact one of us either in person, by email, or anonymously if you have suggestions about improving the course materials.

Course schedule

Date	Lecture #	Lecture Topic	Lab #	Lab Topic
1/19	1	Introduction		No Lab
1/21	2	Plant cell		
1/26	3	Growth and division of the cell	1	Intro to Plants I CBS Conservatory tour
1/28	4	Stems		
2/2	5	Leaves	2	Intro to Plants II
2/4	6	Photosynthesis		
2/9	7	Roots	3	Leaves LAB QUIZ 1 (Labs 1–2)
2/11	8	Secondary Growth		
2/16	No new course module; self-study for exam		4	Stems
2/18	EXAM 1 (Lectures 1–8)			
2/23	9	Respiration	5	Roots LAB QUIZ 2 (Labs 3–4)
2/25	10	Nutrient Transport; Soils and Mineral Nutrition		
3/2	11	Plant Growth and Development	6	Physiology I
3/4	12	Origin of eukaryotic cells, meiosis & life cycles		
3/9	13	Fungi and Lichens	7	Physiology II LAB QUIZ 3 (Labs 5–6)
3/11	14	Algae		
3/16	15	Bryophytes	8	Algae
3/18	16	Life cycles		
3/23	No new course module; self-study for exam		9	Fungi and Lichens
3/25	EXAM 2 (Lectures 9–16)			
3/30	17	Vascular plants without seeds	10	Seed-free land plants LAB QUIZ 4 (Labs 7–9)
4/1	18	Gymnosperms		
4/5–4/9	Spring Break			
4/13	19	Angiosperms	11	Gymnosperms
4/15	20	Angiosperm reproduction		
4/20	21	Plant biotic interactions	12	Angiosperms I
4/22	22	Plant ecology		
4/27	23	Plant domestication	13	Angiosperms II CBS Conservatory visit LAB QUIZ 5 (Labs 10–12)
4/29	24	Plant biotechnology & GMO		
5/6	FINAL EXAM (Lec. 17–24; Qs from Exams 1&2)			

All the **exams** and **lab quizzes** are online and scheduled on Thursdays.

COVID-19 SAFETY for IN-PERSON LAB (only apply to the two Tuesday sections)

The University's top priority is your health and safety. Our safety during this pandemic depends on what each of us does. Here's what you and I can do to be safe in lab:

Do not come to the lab if you are ill. If you have any of the symptoms listed below, or are not feeling well in general, stay home and contact your instructor to let them know you are ill.

- Fever (100.4 F or higher)
- Cough
- Shortness of breath
- Chills
- Sore throat
- Muscle pain or a headache
- Loss of taste or smell
- Nausea, vomiting, or diarrhea

If you are experiencing the above coronavirus symptoms, we encourage you to:

1. Self-isolate to help prevent spreading the disease
2. Call the Boynton Nurse Line 612-625-7900

If you come to Boynton Health with coronavirus symptoms, DO NOT ENTER. Stop and call 612-625-7900 and someone will direct you further. You can also get tested at other COVID-19 testing sites in the state of Minnesota.

BEFORE LAB

Review and comply with University guidelines for COVID-19. To participate safely in lab activities, it is important that you wear proper attire to protect yourself. You will also be expected to wear PPE in order to maintain a safe lab environment for you, your fellow students, and instructors.

Lab Attire

- Full length pants or skirt (no leg showing)
- Closed toed shoes
- Full shirt (short sleeves are okay, but no exposed back or belly)
- Long hair tied back

PPE

- Mask covering mouth/nose (or face shield*). [Masks with "cool flow" exhaust valves are not acceptable.](#)
- Gloves will be available for lab activities that require them (nitrile gloves provided).

*If you are registered with the DRC and have a disability accommodation letter related to wearing a mask, please contact your instructor early in the semester to review how the accommodations will be applied in the course. If you need accommodations, please contact the DRC office (UM Twin Cities - 612.626.1333) to arrange a confidential discussion regarding equitable access and reasonable accommodations.

Your TA WILL ask you to leave if you are not wearing correct lab attire or are not wearing appropriate PPE during lab.

IN LAB

Maintaining a safe lab space

We want to keep the lab environment as clean and safe as possible. The guidelines listed here are to protect you while you are working in the lab, and to ensure that you help keep lab spaces safe for others.

- Only enter assigned lab spaces & work at designated stations.

- Enter/exit through marked doors only.
- Wear a mask covering your mouth and nose (or face shield*).
- Wash your hands thoroughly with soap and water for at least 20 seconds upon entering the lab.
- Maintain social distancing of at least 6 ft, both in the lab and in common spaces outside of the lab.
- Sanitize surfaces upon entry with provided disinfectant.
- Use your own pens, notebook etc. - do not share these items.
- Be aware that you can contaminate surfaces while wearing gloves
- Should you need to cough or sneeze, cover your mouth and nose and reapply hand sanitizer.
- Be patient and kind. No one likes these changes, but we and others will benefit from them. It is easy to inadvertently move too close or take off a mask. If you see someone not complying with these guidelines, gently remind them to correct the problem. Instructors and TAs sometimes walk around during lab. If someone gets too close, put your hand up to let them know to stay away.

BEFORE LEAVING CLASS

- Wipe down any lab equipment used with provided disinfectant before and after use.
- Wipe down your bench surface when you're finished with disinfectant.
- Follow any other cleanup/safety protocols as instructed by TA.
- Wash hands before leaving the lab.
- If you used safety glasses place them in the used glasses bin.

ALWAYS

- If you have concerns about the wellbeing of a classmate, share your concerns with me.
- If you are quarantined during the semester, please contact your TA. The TA will try to make reasonable accommodations for you.
- If you have suggestions for how the TA or the University can make our lab or lab rooms safer, please let your TA know.